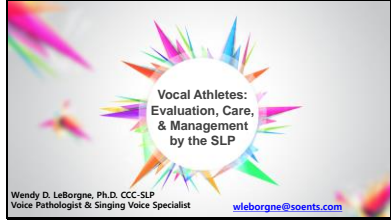


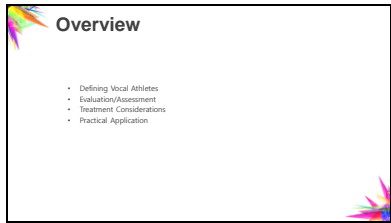
Slide 1



Slide 2



Slide 3



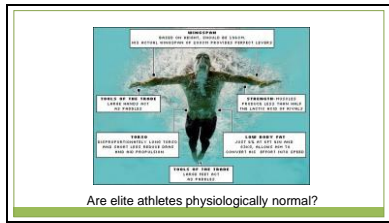
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Slide 5



Slide 6



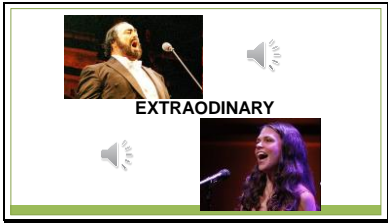
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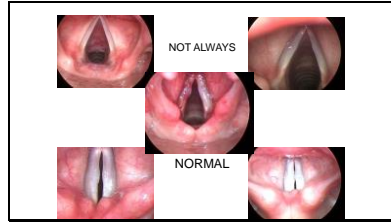
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Slide 9



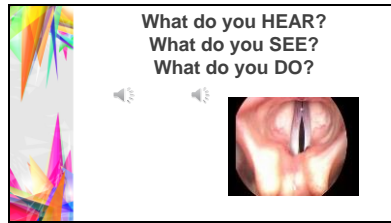
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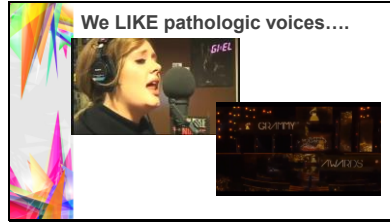
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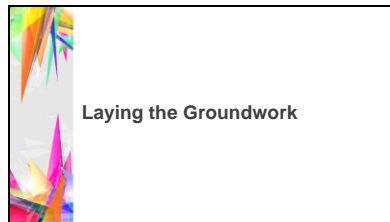
Slide 12



Slide 13



Slide 14



Slide 15




Slide 16

Sports/Dance Medicine Parallel

- Multitude of studies
 - Epidemiology of injuries
 - Nature/Type of injuries incurred within a given sport
 - Gender-specific injury patterns and risk factors
 - Physiologic and anthropometric profiling of novice and elite athletes
 - Psychological profiling of novice and elite athletes
 - Fatigue management in elite athletes
 - Repetitive strain injuries in musicians
 - Injury prevention guidelines for novice and elite athletes
 - Occupational hazards within a given sport/dance


Slide 17


Least training
Least paid
High risk of injury
Injury impact on team - low



250,000 kids (2000)

Most training
High paid
High risk of injury
Injury impact on team - high





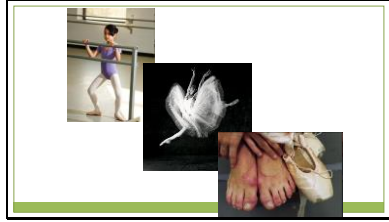
53 per team x 32 NFL teams = 1,696 players @ \$2 million

Slide 18

Incidence/Prevalence of Vocal Injury in Performers

- Voice disorders within the general population @ 30% (Roy, et al., 2005)
- Vocal injury within high vocal demand professions
 - Teaching – 57% reported vocal problems
 - Performing Arts
 - Hoffmann-Ruskly, et al (2001) – theme park performers
 - Laberge (2008) – Musical Theatre Performers
 - 50% had non-inflammatory pathology
 - Tepe, et al (2005) – 129 young choral singers
 - 20% reported non-inflammatory pathology
 - Homan-Ackah, et al (2002) – stroboscopic findings in singing teachers
 - 41% reported non-inflammatory pathology
 - Ellis (1997) – Prevalence of pathology in non-symptomatic opera singers
 - 29% had pathology in a 1st period of vocal registration
 - Lambly (1999) – college-level singing students
 - 75% had reflux laryngitis

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Slide 20

High Risk Performers

- **Vocal Demands**
 - Long rehearsals
 - Vocal gymnastics
 - Intensive voice use
 - Increased vocal intensity
 - Singing while performing choreography
- **Physical Demands**
 - Choreography
 - Stage combat
 - Restrictive costumes/masks
 - Cardiovascular and weight training
- **Emotional Stress**
 - 85% of MT performers over a 5 year period reported high personal stress
 - 8 8% of MT performers on anti-anxiety or anti-depressant medications

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High-risk Elite Vocal Performers

- **5-8 shows per week**
 - Increased potential for repetitive strain injuries
 - Medial compression
- **High vocal intensity for prolonged periods of time**
 - Phonotrauma to laryngeal mucosa
- **Physical fatigue**
 - Results in phonatory compensation
 - Costume demands

Tiza, 1994; Gunter, 2005; Verdoni, 1999; Jang, 2001; Czerwinka & Jang, 2009

Slide 22


Guidelines for Assessment and Treatment of High Risk Performers

- Understanding of Vocal, Physical, Emotional, and Occupational Demands
- Knowing what questions to ask
- Technical Evaluation of Voice
 - Identification of deviant phonatory habits
- Individualized treatment planning**

** Management and Treatment of the Professional Voice April, 2011

Slide 23

Understanding the Artist.....



Slide 24


Professional Voice

- A highly talented individual who, by the very nature of his/her environment is bound to have voice problems due to:
 - Vocal abuses
 - Vocal overuse
 - Physical fatigue
 - Mental fatigue

Slide 25

Hazards of the Profession


- Vocal Abuses
- Physical Fatigue
- Mental Anguish
- Occupational Detriment



Slide 26

General Vocal Abuses


- Yelling, screaming, loud talking, talking over noise (cast parties, waiting tables, telemarketing, singing in the car, talking over the noise of the TV, vocal enthusiasm at sporting events)
- Speaking or Singing too loudly, too much, and out of range
- Overuse of the voice
- "the show must go on" syndrome
- Non-work vocal habits (weight lifting, lack of sleep, poor diet)
- Inappropriate speaking voice
- Throat clearing & coughing



Slide 27

Vocal Hazards Specific to the Actor/Singer

- Emotional Scenes
- Working over background noise (storms, orchestra, stage combat, ventilation systems, sirens, etc.)
- Oversinging or speaking (equity 8 hour days, non-equity 10-12 hour days)
- Theater size
- "Survival job"
- Smoking/Alcohol
- Fog machines/theater dust
- Talking too fast, too much, too loud



Slide 28

Physical Fatigue


- Tension (neck, jaw, tongue, etc.)
- Lack of sleep
- Poor nutrition
- Allergy/Sinus problems
- Travel Schedule
- Rehearsal Schedule
- Audition Schedule
- Restrictive Costumes/Masks
- Stage combat/dance/movement



Slide 29

Mental Issues

- Constant rejection/criticism
- Always having to be "up"
- Body image issues
- Voice problems
- Personal issues



THEIR VOICE IS THEIR CALLING CARD

Slide 30

Impact of Injury on Vocal Athletes

- Occupational
- Emotional
- Social

Slide 31

The Fragile Professional

- Their voice is their life.
- Tend to wait until crisis point
- The mention of the word nodules....
- Emotionally volatile
- The show must go on syndrome

Slide 32

Now That They Have Made It to See You....

- Treat them delicately
- Common complaints/symptoms
- Most common pathologies
- The Voice Care Team
- Treatment Planning

Slide 33

Pertinent Questions for the Vocal Athlete

Slide 34

Questions to Add to Patient History

- What is the problem? (Specifically)
 - Onset, previous history of voice problems, what type of hoarseness, how is it affecting your performance
- Do you have any pressing voice commitments?
 - Will determine to some degree the treatment planning
- Career Plans: long & short term goals
 - How important is their voice, are they ready to make changes?

Slide 35

Questions to Add to Patient History

- Previous vocal training? (singing and speaking)
 - Where, when, who, how long, time since last lesson
- What is your practice & performance environment?
 - Background noise, practice room, orchestra, microphone use, monitor use, choral
- How much to you practice & exercise your voice?
 - Nature of the exercises (scales, arpeggio, etc.), same time each day, warm-up, cool-down, total rehearsal time, sing 'cold'
- What type of music do you sing?
 - Opera, country, jazz, pop, rock, musical theater (legit or belt), choral, karaoke, gospel, contemporary Christian, folk, oratorio

Slide 36

Questions to Add to Patient History

- Do you abuse/misuse your singing and/or speaking voice while performing?
 - Questions related to tension, posture, breathing, abnormal voices for a specific role, singing in car, poor support, dialects
- What is your general physical condition?
 - Singing is an athletic activity, rapid weight loss, excessive work-outs
- What does your liquid intake consist of?
 - Water, soda, coffee, alcohol, tea, juice, milk

Slide 37

Questions to Add to Patient History

- In depth medical inquiry:
 - Do you have cold/allergy symptoms?
 - Do you have breathing problems?
 - Do you have jaw joint or other dental problems?
 - Have you ever suffered any direct trauma to the neck or throat such as whiplash or a fall?
 - Do you have abdominal problems?
 - Are you ever symptomatic for heartburn or reflux (morning hoarseness, bad breath, excessive phlegm, lump in the throat feeling)?
 - Do you or direct family members have hearing loss?

Slide 38

Questions to Add to Patient History

- Medical inquiry (cont.)
 - Do you have problems controlling your weight, being excessively tired, being cold when others are warm? (looking for endocrine dysfunction)
 - Do you have thyroid problems?
 - Are your menstrual cycles regular? Does your voice seem to change around the time of your menstrual cycle? Hormone replacement? Birth control?

Slide 39

Questions to Add to Patient History

- Medical inquiry (cont.)
 - Have you been exposed to any environmental irritants?
 - Do you live with or work with smokers? Do you smoke?
 - Have you noted any voice or body weakness? Tremor, fatigue, or loss of control?
 - Any recent medication changes? Vitamins? Herbal supplements?
 - Do certain foods seem to affect your voice?
 - Did you have any type surgical procedure prior to the onset of your voice problem?
 - What is your stress level like? How do you feel that you deal with stress?

Slide 40

Clinical Assessment of Vocal Athletes

- Videostroboscopic Examination
 - Great tool for teaching anatomy and physiology
- Acoustic Measures
 - Voice Range Profile
 - Fundamental Frequency
 - Frequency Range
- Aerodynamic Measures
 - Mean air flow rates
 - Maximum phonation times
 - Phonation flow volume
- Technical Voice Assessment
 - In performance

Slide 41

Common Complaints/Symptoms

- Hoarseness (may or may not affect speaking voice)
- Voice fatigue
- Loss of frequency range
- Loss of intensity control
- Hole in the voice
- Vibrato changes

Slide 42

Common Complaints/Symptoms

- 'Fuzzy' sound
- Shift in range
- Increased warm-up time
- Tickling/choking
- Chronic throat clearing
- Laryngeal pain

Slide 43

Common Pathologies

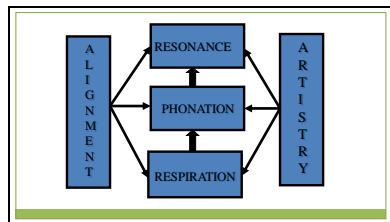
- Nodules
- Acute or Infectious Laryngitis
- Laryngeal Myasthenia
- Polyps
- Contact Ulcers, Granuloma
- GERD

Slide 44

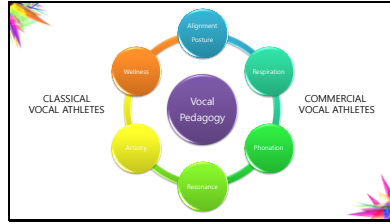
The Voice Care Team

- Speech-Language Pathologist
 - Assess aerodynamic & acoustic measures of voice
 - Assess vibratory patterns of vocal folds
 - Provide therapy (as appropriate)
- Otolaryngologist
 - Diagnose pathology
 - Treat medically/surgically (as appropriate)
- Voice Teacher and/or Coach
 - Artistic Component
 - Technique

Slide 45



Slide 46



Slide 47


Who Are These Vocal Athletes?

CLASSICAL	COMMERCIAL
<ul style="list-style-type: none">7 Major Voice TypesDiaphragm, Abdomen, Cervical, Counterbalance, Thoracic, Pelvic, & Base30+ Fachs (Based on Range, Weight, & Color of voice)	<ul style="list-style-type: none">17+ GENERAL Types of Popular Music Genres (Jazz, Blues, Avant-Garde, Blues, Caribbean, Christian, Comedy, Country, Easy Listening, Electronic, Folk, Hip Hop, Jazz, Latin, Pop, R&B, Rock)40+ GENERAL Types of Singing (From Chorus to Soloists to Back to Topliner)

Slide 48

Perceptual Attributes:
What do they sound like & what gets hired?

Slide 49

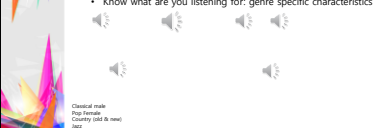
Classical	Science	Commercial
<ul style="list-style-type: none"> Vibrato Resonance/Ring Clarity/Focus Intensity Dynamic Range Evenness of Registration Intonation accuracy Legato line Diction Flexibility Color/Warmth Breath Management 		<ul style="list-style-type: none"> Vibrato Resonance/Ring Clarity/Focus Intensity Dynamic Range Evenness of Registration Intonation accuracy Legato line Diction Flexibility Color/Warmth Breath Management

Slide 50

Perceptual Attributes: Studio Application


Train your ears:

- Artistically relevant in the chosen genre
- Know what are you listening for: genre specific characteristics



Classical style
Pop/Rock
Country (old & new)
Jazz


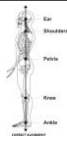

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Alignment
Posture

Slide 52

The Pedagogy & The Science

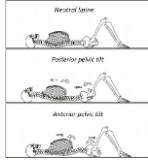
Classical	Science	Commercial
<ul style="list-style-type: none">• Feet positioning/stance• Spinal Alignment• Shoulders down & back• Chest expansion• Head "floating"• "Noble" posture• Raked stage 		<ul style="list-style-type: none">• Often compromised• Highly physical dance• Playing instruments• Physically fit• Raked stage/moving stage• Audience interaction 

Slide 53

Application


Find & Maintain Neutral Spine

Supine
Sitting
Standing




Core Stability
Muscle Balance
Deviant Postures?

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The Pedagogy & The Science


Classical	Science	Commercial
<ul style="list-style-type: none">• Basis for good singing• Diaphragmatic breathing• Smooth/muscle• Maximum inhale/controlled exhale exercises• Panning exercise		<ul style="list-style-type: none">• Speech-like patterns• Dancers who breathe• Emotionally-based breath patterns

Slide 56

Application

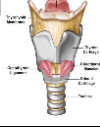
- Assessment of breath/breathing/breath support
 - Must do in CONTEXT
- Breath Exercise
 - Speak: "How are you today?"
 - Sing: "How are you today?" 5-4-3-2-1; 5-3-4-2-1; 1-2-3-4-5
 - How much breath did you take in when you spoke vs. sang the phrase? How much air do you need? What happens when you "over-inflate"?
- Physiologic Respiratory Exercises: Inspiratory & Expiratory Muscle Strength Training Devices

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Phonation

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The Pedagogy & The Science

Classical	Science	Commercial
<ul style="list-style-type: none"> • Phonation Onsets • Coup de glotte • Use of Registration 		<ul style="list-style-type: none"> • Phonation Onsets • HGA • Fry • Growl • Scream • Falsetto • Use of Registration

Slide 59

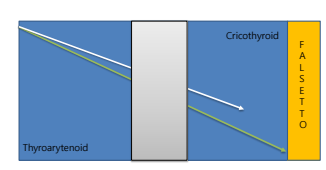
Application

Phonation Exercises:

- Know the **WHAT, WHY, & HOW** of the exercises you are choosing (and be sure your patients understand too!)
- What is the problem?
- Why this exercise?
- How is this exercise going to help the problem?

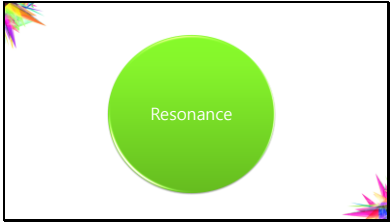
Register blending/muscle recalibration with crossover
 Hard glottal attacks (safely)
 Balance, balance, balance...find your vocal neutral

Slide 60



The diagram illustrates a cross-section of the larynx. On the left, a blue area is labeled 'Thyroarytenoid'. On the right, a yellow vertical bar is labeled 'FALSETTO'. A grey vertical bar in the center is labeled 'Cricothyroid'. Two white arrows point from the Thyroarytenoid area towards the Cricothyroid bar, and another white arrow points from the Cricothyroid bar towards the Falsetto area.

Slide 61



Slide 62

The Pedagogy & The Science

Classical	Science	Commercial
<ul style="list-style-type: none"> • Vowel Tuning • Singer's Formant • Timbre • Focus/Placement 		<ul style="list-style-type: none"> • Formant Tuning in Belting • Timbre • Focus/Placement • Nasality

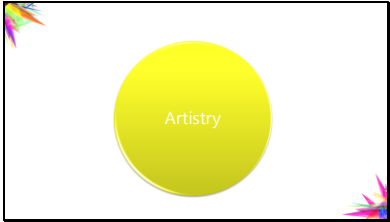
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Application

Resonance Play Exercises:


- Speaking voice neutral
- Singing voice neutral
- Hypernasal (speech/song)
- Overly spacious (speech/song)

Slide 64



Slide 65

The Pedagogy & The Science

Classical	Science	Commercial
<ul style="list-style-type: none"> • MPA • Emotion & Breath • Emotion & Sound • Emotion & Resonance 		<ul style="list-style-type: none"> • MPA • Emotion & Breath • Emotion & Sound • Emotion & Resonance

Slide 66

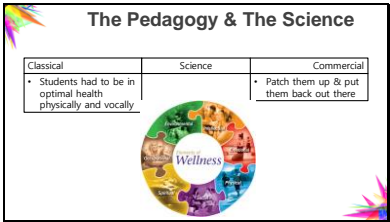
Application

- Anxiety Inducing Exercise
 - Now Sing "Or the land of the Free"
- Focused Meditation Exercise
 - Now Sing "Or the land of the Free"

Slide 67



Slide 68



Slide 69